Running head: Impact of AHLTA

Analysis of the Impact of the Armed Forces Health Longitudinal Technology Application

(AHLTA) on Ambulatory Data Module and Coding Compliance and Provider

Productivity

at Moncrief Army Community Hospital

A Graduate Management Project

Submitted to the United States Army-Baylor University Residency Committee in

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Captain Cerise R. Hamlin

Moncrief Army Community Hospital

Fort Jackson, South Carolina 29207

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Abstract

This study examined the effects of the Armed Forces Health Longitudinal Technology

Application (AHLTA) implementation on Ambulatory Data Module (ADM) compliance,

coding compliance, and provider productivity. The sample size consisted of the 24

months of data. The AHLTA system is an electronic medical record designed to improve

patient care delivery in the military health system. A statistical analysis of the

implementation of the AHLTA system on coding compliance and provider productivity

showed positive statistical significant results (r =.165, and p =.000) and (r =.216, and p

=.022) respectively. There was no statistical correlation between AHLTA implementation

and ADM compliance.

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Introduction

As health care continues to weigh heavily on the minds of Americans, the emphasis continues to be placed on the improvement of the three major aspects of health care delivery which are cost, quality and access. These three elements combine to form the iron triangle of health care. It is important to maintain a relatively even balance with at least a minimal amount of success in each area in order to be able to provide a level of health care that is satisfactory to patients. Patients want unlimited access to a health care provider for the lowest cost with the best quality.

In an effort to keep up with the ever-changing demands in health care, many health care organizations have implemented an electronic medical records (EMR) system. The purpose of this system is to allow for greater quality of care and access to care without increasing costs to the patient. The United States Military Health Services' adaptation of this system is the Armed Forces Health Longitudinal Technology Application (AHLTA) formerly known as the Composite Health Care System II (CHCS II) which is an upgrade to the existing Composite Health Care System tool. The official name change was revealed on November 21, 2005 at the National Naval Medical Center in Bethesda, Maryland. The system did not undergo any changes, it was only renamed.

Since the early 1990's the AHLTA has been the provider order entry system used by the military. It allows for fast and efficient patient care due to its ability to interface with more than 40 clinical and administrative systems. Servicing approximately 9 million beneficiaries at more than 700 Department of Defense (DoD) medical facilities, it is one of the largest standardized health information systems. It is used to order and

document laboratory tests, radiology exams, prescription transactions, and document

outpatient appointments (Clinical Information Technology Program Office, 2005).

The new tool, AHLTA, will be especially beneficial to the military in that it

provides access to the medical information of the mobile patient population. It also

allows for individual and population health improvement. Advocates for the system

include: the Leapfrog Group for Patient Safety, Joint Commission on Accreditation of

Health Care Organizations (JCAHO), medical insurance carriers, Institute of Medicine

(IOM), American Academy of Family Physicians (AAFP), and the President of the

United States.

The Leapfrog Group is a group of national public and private health insurance

purchasers who work together to ensure safe health care for Americans (The Leapfrog

Group, 2004). JCAHO is the oldest and largest accrediting body for health care

organizations. The Joint Commission International Center for Patient Safety has joined

forces with the World Health Organization to eliminate medical errors worldwide

(JCAHO, 2005). The Institute of Medicine provides advice on biomedical science,

medicine and health. The American Academy of Family Physicians is one of the largest

national medical organizations. It acts as the advocate for family medicine practices and

ensures quality, cost-effective patient care (AAFP, 2005). One common health care

initiative that is important to each organization mentioned is to eliminate prescription

drug errors with Computer Physician Order Entry (CPOE) (Group Health Incorporated,

2005).

Conditions that Prompted the Study

The American health care system has been plagued by persistent quality and medical errors. According to the Institute of Medicine (IOM) report, *To Err Is Human: Building a Safer Health System*, 44,000 to 98,000 Americans die each year from preventable medical errors (Kohn, Corrigan, and Donaldson, 2000). In an effort to reduce the potential for medical errors as well as improve health care, the Department of Defense established a contract with Integic Corp to develop a new computer system to manage patient data. This new system, AHLTA, is a computer-based patient record that is to be used throughout the DoD Military Health System (Moncrief Army Community Hospital, 2005).

In August 2004 the Program Manager for the Army Medical Department (AMEDD) CHCS II (AHLTA) Implementation and Clinical Integration conducted a site visit at Moncrief Army Community Hospital (MACH). During his visit he discussed the benefits of AHLTA as well as the potential problems that could be expected with the initial use of the system. Some benefits include: improved patient care, enhanced patient care, reduced paperwork, and a rapid return on investment (InteGreat Concepts, Inc, 2005). The system was field tested at three Army installations prior to its worldwide deployment. These installations were Fort Eustis, Virginia; Fort Bliss, Texas; and Fort Lee, Virginia. Worldwide deployment began in January 2004.

Moncrief Army Community Hospital (MACH) is the Military Treatment Facility (MTF) located on Fort Jackson, South Carolina. Fort Jackson is the Army's largest basic training installation graduating approximately 40,000 soldiers each year. The hospital

provides services for approximately 60,000 beneficiaries to include active duty service members and their dependants, eligible retirees and their dependants, Basic Combat Training (BCT) soldiers, Advanced Individual Training (AIT) soldiers, and enlisted soldiers and officers assigned to various service schools on Fort Jackson.

Moncrief's staff consists of approximately 350 military and 500 civilian personnel. Specialty services offered include Allergy, Cardiology, Family Practice, Oncology, Pediatrics, Gastroenterology, Psychiatry, and Internal Medicine. There are also a number of surgical specialties and other services such as respiratory treatment and social work services offered at the facility. Moncrief is accredited by the Joint Commission on Accreditation of Healthcare Organizations, the College of American Pathologists, the Association of American Blood Banks, and the American Optometrical Association. Moncrief is assigned to the Southeast region of the TRICARE health system. The regional command is the Southeast Regional Medical Command which is located at Fort Gordon in Augusta, Georgia.

Moncrief Army Community Hospital was scheduled to begin its implementation on September 14, 2004 with an end date of November 29, 2004 in all outpatient clinics. The objective of the organization was to familiarize the users with the new system and train those users to integrate the system into their daily routines. The clinic activation sequence took place as scheduled.

The structured on-the-job training for all users was conducted from September 13, 2004 to November 11, 2004. The overall total was 443 personnel trained. This included 152 providers, 43 nurses, 153 technicians, and 95 clerks.

The training was conducted in a short amount of time because the provider's schedule had to be blocked for a week. This means that there were no patients seen by this particular provider for one week. This made it imperative that all providers complete the training as quickly as possible and get back to taking care of patients. There was some refresher training as the lessons learned developed but nothing as intense as the initial training.

Statement of the Problem

Deaths due to medical errors are increasing at a rapid rate. Some errors occur as a result of poorly written information and some are due to lack of medical information. The transient nature of the military population makes it difficult to always have access to the patient's medical records. When a soldier is on a temporary duty assignment or on leave, they do not always have access to their medical records. Providers need to have access to these records in order to provide adequate care.

As a part of the Department of Defense initiative to improve the delivery of care in the Military Health System, MACH is required to implement the new electronic medical record AHLTA. The electronic medical record would make the patient information available to providers globally with the touch of a button.

Literature Review

Poor data quality can be detrimental to an organization's efforts for improvement. It is DoD policy that all medical encounters within the Military Health System (MHS) must be accurately and promptly documented and coded, adhering to legal and medical coding classification standards, as permitted by MHS data collection systems. Successful documentation and coding efforts assist the Military Treatment Facility (MTF) operations

(Winkenwerder, W., Jr., personal communication, June 10, 2004). Accurately coded encounters lead to reimbursement from third-party payers and this brings money back to the MTF.

Health care providers in the MHS are unique in that the incentives for providing quality, efficient health care are different from their civilian counterparts. As a medical student much emphasis is placed on basic and clinical sciences. There are no administrative courses in the basic four year medical school curriculum. In order to gain these much needed administrative skills, a provider would have to enroll in additional courses. Realistically, many are not interested in the additional responsibilities and choose not to pursue the administrative classes. The additional knowledge could prove quite beneficial when opening a private practice or entering the senior management stages of ones career.

When they arrive at their residency site or enter into their practices, providers expect to have a support staff that includes administrative assistants to perform the non-clinical duties. In the civilian workforce many providers quickly learn to have a small multi-talented staff. This allows the provider to minimize the cost of salary and increase revenue.

In the MHS, providers are authorized a pre-determined amount of support staff based on the assigned beneficiary population and overall workload. Because the paycheck of the military health care provider is not directly affected by their productivity, there is little to no incentive to be as efficient and diverse as their civilian counterparts. Civilians understand that if they do not properly document their workload, they will not get paid.

With the implementation of the new AHLTA system, the DoD acknowledged that providers are limited on time, have substantially high patient loads and various administrative tasks assigned. They also acknowledged that AHLTA is not a perfect Electronic Medical Record (EMR) application. However, it is a tool to improve health care.

According to the chief medical information officer at Geisinger Health System in Danville, Pennsylvania, physicians who were initially reluctant to use the electronic medical records system will not practice without it now (Walker, 2005). He also acknowledges that in order to improve physician performance other system components are needed to support the EMR. He recommends health care organizations offer incentives for using EMRs to improve health care quality and patient care (Walker, 2005).

Modern Healthcare magazine cites cost of purchasing and implementing the EMR as a significant barrier to EMR use (Robeznieks, 2005). Costs are estimated to be between $20,000 and $33,000 for implementation and approximately $1500 per month per physician for maintenance. These numbers are discouraging to the smaller practices but do not deter those with larger practices. Some skeptics question whether the savings accrued benefit the government and insurance as opposed to the physicians who use the systems (Robeznieks, 2005).

The overarching belief is that the adoption of the electronic medical record will lead to health care savings, reduce medical errors, and improve health. According to the RAND Corporation in Santa Monica, California, the United States is behind other countries in the use of electronic medical record systems (Hillstead, Bigelow, Bower,

Girosi, Meili, Soville, and Taylor 2005). The RAND group cited costs, lack of

certification and standardization, privacy concerns, and pay versus profit issues as the

barriers responsible for many providers not choosing to adopt the EMR system (Hillstead

et al., 2005).

One organization that seems to have gotten off to a great start in the EMR

initiative is the Veteran's Administration (VA). The VA is one of the premier health care

systems to use the electronic health record. The VA began its efforts to improve health

care using a Computerized Patient Record System (CPRS) in the mid-1990's providing

services for approximately four million people each year (Graham, Nugent, and Strouse,

2005).

Its current system, VistA, provides clinical, financial, and management

information necessary to run the organization. Although this system is sufficient for the

VA's current operation, the VA is working to transform the current system into a more

modern day information tool that will perform more like the Department of Defense's

AHLTA system (United States Department of Health and Human Services, 2005).

The new tool would be known as the HealtheVet-VistA. Data from the new

system would be more patient-centric as opposed to facility-centric, allowing for more

standardized data that would make patient information available to health care providers

during patient encounters no matter where they are in the world (United States

Department of Health and Human Services, 2005). With the Healthe-Vet web based

computer system, patients are able to access select portions of their medical record using

an assigned login ID and password. This enables patients to become more active

participants in their health care (My HealtheVet Pilot, 2005).

Purpose of the Study

The purpose of this project is to assess the impact that the AHLTA implementation has had on Moncrief's data quality in several key areas. The results from this project could potentially lessen the impact of the AHLTA transition to the inpatient clinics in the hospital in the future. The three areas that could be heavily influenced by the introduction of AHLTA into the Military Health System (MHS) include Ambulatory Data Module (ADM) compliance, coding compliance, and provider productivity.

The Ambulatory Data Module in CHCS is the automated information module used to track and manage ambulatory patient care. The module collects and reports information such as patient diagnosis and procedures. The information collected is then used to evaluate the cost-effectiveness of the care provided (CITPO, 2005).

The coding compliance guidelines have been established by the DoD Directive 6040.41: Medical Records Retention and coding at Military Treatment Facilities. The policy was established to ensure proper coding of patient encounters. It states that 100 percent of outpatient encounters should be coded within three business days of the encounter. The ultimate goal is for 100 percent coding accuracy with incremental goals of 95 percent in FY2004, 97 percent in FY2005, and 100 percent in FY2006 (Wolfowitz, P., personal communication April 13, 2004). This means that the codes assigned for each patient encounter match exactly with the codes provided in the ICD-9, E & M, and CPT manuals. These figures are audited by the coding auditors in the facility.

Provider productivity in this study is measured by the Relative Value Units (RVU) generated by the providers in the Family Health and Pediatric clinics. Although there are other measures that can be used to determine the productivity of a provider, for

the purpose of this study the RVU will be the primary measure. An RVU is a point

system designed to assign a numerical value to the productivity of each provider.

According to the Data Analysis Section of the Patient Administration Systems and

Biostatistics Activity (PASBA), RVU are being used to measure productivity and clinical

intensity of the care we provide (James, 2005). The formula used by the Military Health

System to measure provider productivity or RVU is RVU/Full Time Equivalent

(provider)/Day. The U.S. Army guidance is that providers have 15.4 RVU/FTE/Day

(James, 2005). The data will be presented as an RVU average for the FHC collectively

for 24 months from October 2003 to September 2005.

Method and Procedures

In conducting this study, the intent is to develop a baseline data period of one year

prior to the implementation of the new AHLTA tool. This information will be evaluated

and then compared to the data compiled from its first year of use to determine the level of

impact. The baseline consists of the monthly compliance score average data obtained

from CHCS and ADM starting October 2003 and ending September 2005.

An Analysis of Variance (ANOVA) test will be used to determine if there is a

statistically significant difference between the two years observed in the study. Analysis

of Variance (ANOVA) allows the researcher to identify variability from one or more

potential sources. This study will look at the difference in the means of two years of data.

The data will be analyzed using Microsoft Office Excel 2003.

Variables used in this study include one independent variable, Armed Forces

Health Longitudinal Technology Application (AHLTA) implementation (X) and three

dependent variables (Y_1) Ambulatory Data Module compliance, (Y_2) coding compliance,

and (Y_3) provider productivity. The study will assess the difference between the number of patient encounters that have been coded and documented in the system at the end of each business day before and after the AHLTA system. It will also determine the difference between the level of provider productivity before and after AHLTA implementation. The AHLTA system was implemented at MACH in October 2003. Data will be collected for twelve months prior to the implementation of AHLTA and twelve months after. The expectation is that the data analysis will support the command decision to pilot the AHLTA system in the Family Health and Pediatrics clinic and gradually phase it into the other clinics.

The formal alternate hypotheses state: implementation of the AHLTA system is more likely to lead to increased ADM completion compliance $Y_1=f(X)$, increase coding compliance $Y_2=f(X)$, and increased provider productivity $Y_3=f(X)$ with the implementation of AHLTA. The formal null hypotheses state: there is no change in ADM completion compliance $Y_1 \neq f(X)$, no change in coding compliance $Y2 \neq f(X)$, and no change in provider productivity $Y3 \neq f(X)$ with the implementation of AHLTA.

The Ambulatory Data Module tracks the number of patient encounters at the hospital on a daily basis. The ADM administrator monitors the information generated by the system on a daily basis and at the end of the month (EOM) the administrator runs a report in CHCS to develop and EOM report which is a compilation of each daily report for that month. This same information gathering process is done at the Patient Administration Systems and Biostatistics Activity (PASBA). Each month the MTF is required to submit this information to PASBA using the Hospital Commander's data

quality statement. PASBA compares the submitted data to its collected data and if there is a discrepancy, the report is returned for corrections and resubmitted.

Compliance, as defined by the Patient Administration Systems and Biostatistics Activity (PASBA), means that the information from the Military Treatment Facility (MTF) has been completed and submitted to the Tricare Management Activity (TMA) within 72 hours with 97% accuracy. Accuracy is defined by having the International Classification of Diseases, Ninth Revision (ICD-9) code, Evaluation and Management (E & M) code, Current Procedural Terminology (CPT) code and disposition completed for each patient within the 3% error margin. Accuracy is evaluated and validated by internal audit coders who audit each other's work. Metrics for compliance and accuracy measurements are generated from CHCS and converted to percentages by the Data Quality Manager. The impact will then be measured using the following information obtained from the data quality commander's statement (see Figures 1-3). Figures 1-3 show the Family Health Clinic compliance rates for the items listed below, in percentages, for October 2003 to September 2004 which is the year prior to the AHLTA implementation:

1. The percentage of Outpatient Encounters, other than Ambulatory Patient Visits, that have been coded within three business days of the encounter

2. Compliance with TRICARE Management Activity or Service Level Guidance for timely submission of data (97%): SADR/ADM.

3. Outcome of monthly outpatient coding audit: What is the percentage of E&M codes deemed correct (97% accuracy)

4. Outcome of monthly outpatient coding audit: What percentage of ICD-9 codes deemed correct (97% accuracy)

5. Outcome of monthly outpatient coding audit: What percentage of CPT codes deemed correct (97% accuracy)

6. The provider's available man hours and average workload (RVU/FTE/DAY)

The data will be compiled for the Family Health Clinic and Pediatrics. The information will be provided to the Chief, Family Health Clinic as well as the Deputy Commanders and MTF Commander. The findings will play an instrumental role in the education of the providers and staff on the proper use of AHLTA and the implications of improper use. The information will assist provider educators in determining provider strengths and weaknesses. Also, educators will be able to better focus the education and training targets for each provider.

The South East Regional Command Guidance is that each facility will start with a strong clinic to launch the computerized health record. The information and lessons learned gathered from this clinic will provide the knowledge necessary to successfully integrate the system into the rest of the facility. The feedback from the providers in the clinic, as well as the data compiled in this study, will allow the educators and technical staff to make adjustments to templates in the system as well as training and teaching aids necessary for smooth transition throughout the facility.

The team of educators at the facility will make adjustments as areas for improvement are identified by the system users. Providers will be given refresher training since the implementation of the system to improve on those areas identified by the educators as being weak. The training phase for the Family Health Clinic ended in

October 2004. Trained personnel in the clinic at that time included 19 providers, 16 nurses, and 17 technicians. The schedules of the personnel in this section were altered to accommodate the classroom and on-the-job training required. It is for this reason that the Family Health Clinic will be the only clinic represented in the study.

Ethical Considerations

Patient and physician anonymity was maintained throughout this research endeavor. Information obtained from the AHLTA system and the Patient Administration Systems and Biostatistics Activity (PASBA) contained no individual identifiers to ensure patient and physician privacy was protected.

Expected Findings and Utility of Results

Expected findings of this project are improvements to health care delivery in the Family Health Clinic at Moncrief Army Community Hospital and in data quality and compliance. Some improvements include: increased patient care time, decreased administrative time spent on medical charts, and decreased numbers of procedural duplication. The benefits of the project will not only benefit the hospital but the other clinics associated with the facility. Some indirect beneficiaries include the area network providers and insurance carriers.

It is expected that the means for ADM completion compliance, coding compliance, and provider productivity will be higher in the first year of AHLTA implementation than the year prior to implementation. I also expect to find that medical records' tracking will become practically obsolete because all providers will have access to the patient information with the electronic health record. Providers will be able to leave notes in the record for the next provider to see which means better communication

about patient's needs. Providers will also be alerted sooner about potentially hazardous

drug interactions. Medical records will be more accessible to everyone. They will

contain less clerical errors because the providers will be able to document directly to the

system and not have to rely on the clerical skills of a transcription service.

As with any new system there are bound to be some problems. In addition to the

findings previously mentioned that would make work easier, I expect to find that

computer outages will cause panic because this will now be the central data repository for

patient information. As a precautionary method, there has been a Legacy Gateway

Server installed at Shaw Air Force Base which is located in Sumter, South Carolina

approximately 30 miles away.

This server will act as a backup system for the information generated at MACH.

Also included in the Community of Interest Network is Montgomery, Alabama. This

means that the information generated at MACH is not only stored onsite but also at two

separate locations in case of emergency.

I also believe that providers will be resistant to change initially because the new

system is more time consuming for them. Providers outside the facility, to which patients

may be referred, may find it difficult to gain access to patient information without direct

access to the AHLTA system.

The cost of initiating the system may have the greatest impact. Cost is

operationally defined as the expenditure of time or labor to attain compliancy with

TRICARE Management Activity (TMA) standards. Cost can be measured in several

different ways to include money spent on upgrading computers or time spent away from

patients training on the new system. In either case, the users of the new system could see

the system as counterproductive if the implementation process is not handled correctly. In this study, cost will be the monetary amount associated with improper coding and documentation on the part of the providers in the new AHLTA system that ultimately impacts productivity and compliance.

Results

A Univariate Analysis of Variance (ANOVA) (General Linear Model) was performed to identify the effects, if any, of the implementation of AHLTA (Y_1) on ADM compliance (X_1), coding compliance (X_2), and provider productivity (X_3). The results of the study show that there is statistical significance between the implementation of the AHLTA system and ADM compliance $Y_1 = f(X)$, coding compliance $Y_2 = f(X)$ and provider productivity $Y_3 = f(X)$. The results would indicate that there is cause to reject the null hypothesis. There is a definite difference in ADM compliance, coding compliance and provider productivity as a result of the implementation of AHLTA.

There were twelve months of data gathered pre-AHLTA and twelve months post-AHLTA. The descriptive statistics that summarize ADM and coding compliance rates and productivity percentage rates for these months are shown in Tables 1-3.

Table 1
Descriptive Statistics for ADM compliance

Time Period	Mean	Standard Deviation	N
0 Pre-AHLTA	.92	.01	12
1 Post-AHLTA	.94	.01	12
Total	.93	.01	24

Note: N=24 observations

Table 2
Descriptive Statistics for coding compliance

Time Period	Mean	Standard Deviation	N
0 Pre-AHLTA	.83	.06	12
1 Post-AHLTA	.95	.02	12
Total	.89	.07	24

Note: N=24 observations

Table 3
Descriptive Statistics for provider productivity

Time Period	Mean	Standard Deviation	N
0 Pre-AHLTA	15.07	.85	12
1 Post-AHLTA	13.86	1.47	12
Total	14.46	1.33	24

Note: N=24 observations

Results from the univariate ANOVA that evaluated the impact of implementing the AHLTA system on ADM compliance, coding compliance, and provider productivity are presented in Tables 4-6. The difference between pre and post AHLTA indicates that AHLTA did provide some additional assistance in the ADM compliance, coding compliance and provider productivity, to show statistical significance ($p<.05$) between the two time periods. The strongest relationship or evaluation of difference was between the AHLTA implementation and coding compliance $p =.000$.

Table 4
Analysis of Variance Results Between Time Period 1 and 2 for ADM compliance

Source	Sum of Squares	df	Mean Square	F	p
Corrected Model	1.727E-03[a]	1	1.727	7.779	.011
Intercept	20.886	1	22.886	94047.399	.000
Time_period	1.727E-03	1	1.727E-03*	7.779	.011
Error	4.886E-03	22	2.221E-04		
Total	20.892	24			
Corrected Total	6.613E-03	23			

Note. R Squared = .261 (Adjusted R Squared = .228), *p < .05

Table 5
Analysis of Variance Results Between Time Period 1 and 2 for coding compliance

Source	Sum of Squares	df	Mean Square	F	p
Corrected Model	.083[a]	1	.083	35.144	.000
Intercept	19.369	1	19.369	8171.148	.000
Time_period	.083	1	.083*	35.144	.000
Error	.052	22			
Total	19.505	24			
Corrected Total	.135	23			

Note. R Squared = .615 (Adjusted R Squared =.598), *p < .05 **p <.01

Table 6
Analysis of Variance Results Between Time Period 1 and 2 for provider productivity

Source	Sum of Squares	df	Mean Square	F	p
Corrected Model	8.797[a]	1	8.797	6.056	.022
Intercept	5023.116	1	5023.116	3457.975	.000
Time_period	8.797	1	8.797*	6.056	.022
Error	31.958	22	1.453		
Total	5063.870	24			
Corrected Total	40.754	23			

Note. R Squared = .216 (Adjusted R Squared =.180), *p < .05

When taking a brief glance at the raw percentage rates for ADM compliance pre and post

AHLTA (see Figure 1) it appears that the performance rates for the two years were somewhat

consistent over the two year period. One factor that may have contributed to this finding is

that with each system the standard for ADM completion did not change. The process by

which the ADM manager tracks ADM completion did not change with the

implementation of AHLTA system. The ADM manager tracks the ADM closing rate on a

daily basis and reports the information to each section for immediate compliance. There

is, however, a slight increase in overall compliance in the post-AHLTA year.

*Figure 1.* ADM Compliance Rates for FY04 and FY05
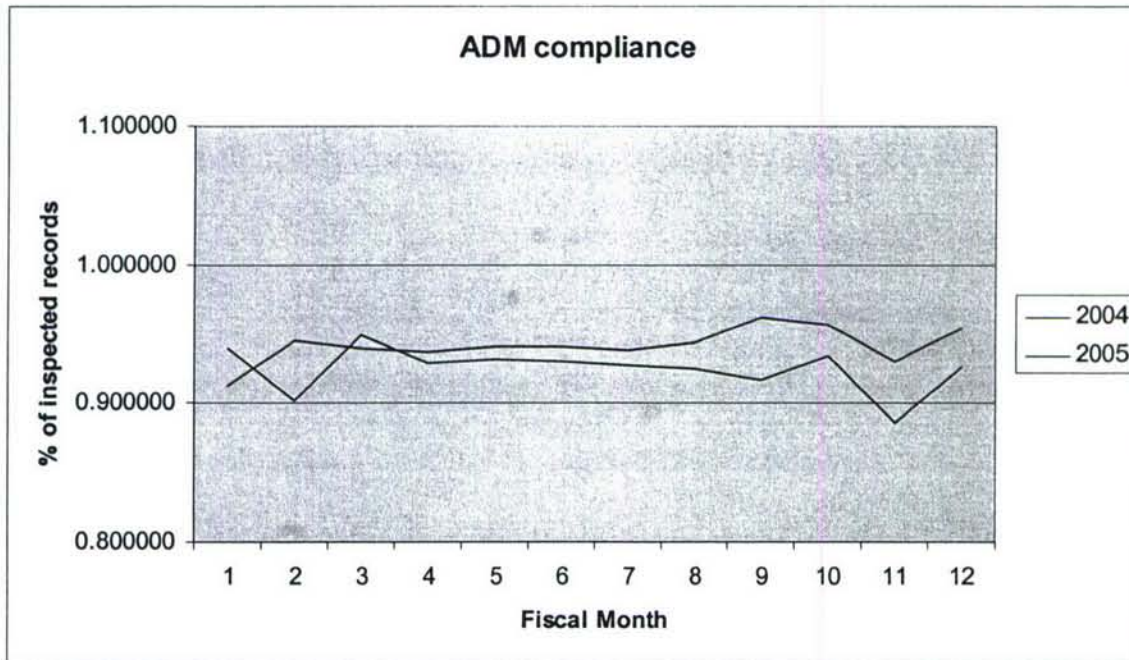
One limitation of the current AHLTA electronic record is that it allows for free

text to be typed by the providers but it does not include the information provided in the

coding. Subsequently, documentation becomes lost and potential workload goes

unnoticed. Since the implementation of AHLTA coders have been working with

providers to develop clinic specific templates that address items commonly typed in free

text to decrease the amount of free text used.

Quality health care is directly related to proper coding. Health care institutions are

constantly seeking ways to improve coding in order to prevent fraudulent claims and to

provide sufficient care to patients. Moncrief has implemented a system where coders act

as coaches and mentors to providers so that the data that is entered into the system is

accurate. It has become apparent that the individual coaching sessions and refresher

provider training has been as success as evidenced in the dramatic increase in coding

compliance shown in Figure 2. In FY 04 coding compliance remained below the 90%

rate but in FY05 the rates remain consistently above 90%.

*Figure 2.* Coding Compliance Rates for FY04 and FY05
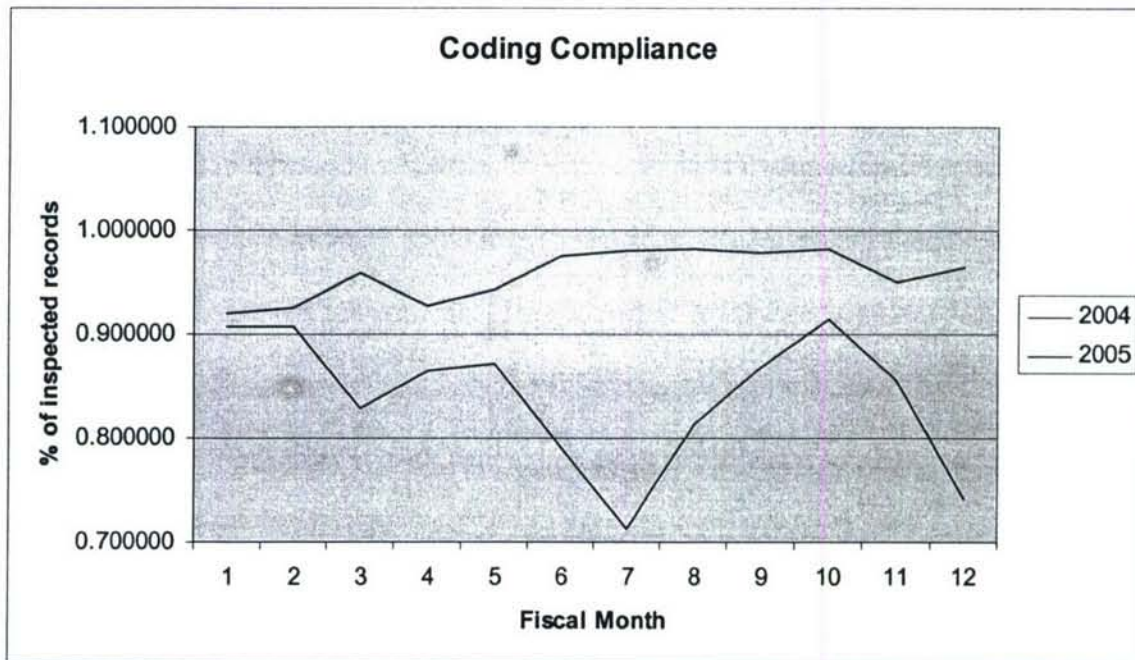
Providers are evaluated by the number of patients they see per day and also the

complexity of the patients seen. This is measured using the RVU calculation. An RVU

value is assigned to each patient diagnosis and procedure. Depending on the complexity

of the case the provider may appear to be more or less productive than others. Figure 3

illustrates the differing levels of complexity of patients seen at Moncrief.

In the seventh month of each fiscal year it is evident that the complexity level of

patients seen increases. This can be explained by the summer surge of Initial Entry

Training (IET) soldiers on post during that time. During summer surge there is a marked

increase in soldiers in training due to high school graduates entering the military at this

time. There is also evidence of a marked decrease in RVUs in FY05 verses FY04.

This might be explained by the improvement in coding accuracy. The subject of fraudulent coding or up coding is prevalent in the news today. Some organizations have been found coding patient encounters at higher levels in order to collect a greater sum of money for each visit. With the new audits being done organizations are now more cautious about coding items not documented in the record. So even though a condition may exist in a patient and it is evidenced by the services rendered in a particular visit, if it is not documented then the workload cannot be claimed.

Figure 3. Provider Productivity Rates for FY04 and FY05
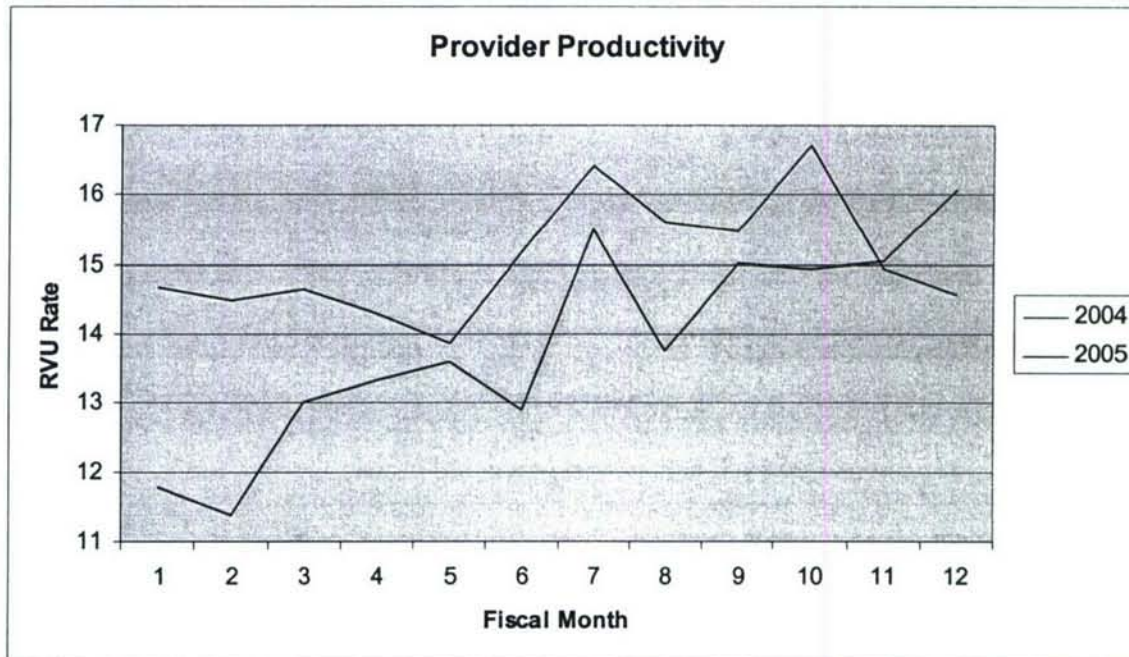
Discussion

This study is one of the first attempts to collect data on the effects of the implementation of AHLTA on the military health system. Because of this it is difficult to identify trends. The findings from this study suggest that AHLTA implementation has

occurred simultaneously with a change in ADM compliance, coding compliance and provider productivity.

AHLTA is the military's new alternative to the paper medical records and its mission is to allow users the opportunity to track the medical history of the war fighters both on and off the battlefield. This allows for real-time treatment and shared information. There is little literature to substantiate the findings in the study.

In this instance the results are internally reviewed and discussed for future reference. Subject matter experts at Moncrief such as the coding supervisor and chief of the Clinical Support Division have speculated that there are several external factors that may have played a significant role in the findings of the study.

This study suggests that ADM compliance, coding compliance and provider productivity are improved by the implementation of the AHLTA system. The strongest of the three relationships is the coding and AHLTA implementation. The results were somewhat expected. It was expected that there would be a strong correlation between the AHLTA implementation and each of the three variables and there was a definite correlation between the AHLTA implementation and ADM compliance, coding compliance and provider productivity.

Moncrief Army Community Hospital was one of the first to field the new tool and discover its imperfections as well as its advantages. As with any new tool there is a learning curve and lessons to be learned. It was discovered early in the process that documentation is key to success with the new system so all users to include providers were trained on proper documentation techniques to achieve the desired results. The most

difficult part of the implementation has been trying to control for human as well as systematic errors.

It is well understood in the medical world that proper coding builds higher RVUs and higher RVUs means more money for the facility. It is for this reason that providers are given extensive training by coders on documentation. The revenue that a facility generates is closely related to the documentation of work performed through coding. Unlike the civilian sector, the military providers' pay is not directly proportionate to the work they perform, it is quickly becoming that way.

Although there was an increased coding compliance rate with the implementation of AHLTA the RVU or provider productivity did not increase at the same rate. This is alarming because the two are so closely linked. If the codes are there the workload should reflect this so that the hospital can get paid.

These three variables ADM compliance, coding compliance and provider productivity (measured in RVUs) are tracked seriously by PASBA. The PASBA office is responsible for compiling data from the various MTFs in order to improve on data quality. There they identify trends and provide guidance to the MTFs on best business practices. ADM compliance, coding compliance and RVUs are the revenue generating avenues for the hospital. If there are outside forces affecting them in any way, it is up to PASBA to identify them and monitor the changes. AHLTA has definitely made an impact that is being seen all over the military health system.

The AHLTA system was implemented at Moncrief in several phases. This in itself posed different obstacles that had not been observed at the time of the study. The study excluded the Troop Medical Clinic (TMC) and Physical Exam Section (PES) and

was focused only on the impact of ADM compliance, coding compliance, and provider productivity. The fixed facility military hospitals are charged with identifying shortcomings within the system and providing recommendations for improvement so that the tool will be more useful. Communication and commitment to providing quality patient care are critical to the success of the AHLTA system.

Many providers and system administrators are not impressed with AHLTA, the DoD electronic health record. Users complain about the speed of the system as well as the ease of use. As a result of system implementation, patient access has dropped tremendously at places like Wilford Hall Medical Center at Lackland Air Force Base in San Antonio, TX. There the average patient load in the dermatology clinic has fallen from 1800 to 1200 patients per month (Philpott, 2006). Many patients are turning to the emergency room for treatment as opposed to scheduling an appointment with their primary care provider (Philpott, 2006).

"The system is frustratingly slow in calling up and storing patient data, and in moving between screens. AHLTA is slow, in part, for the same reason it is seen as revolutionary: information on millions of military patients is being stored in a single clinical data repository" (Philpott, 2006). It takes approximately six to ten seconds to retrieve or store data. In some instances it may take as much as 30 seconds for a process to be completed in the system. Representatives from the information management office explain that they are currently looking for solutions to the problems (Philpott, 2006).

Conclusion

Change is an inevitable fact of life. In the military health system the newest big change is the electronic medical record. There is a big push to advance to a paperless

medical system that can be easily accessible to patients and providers and legible to all. This study highlights the importance of coding compliance and provider productivity to the medical record documentation. In order to compete with its civilian counterparts and provide the best quality of care to its beneficiaries, the military health system has implemented an electronic medical record called AHLTA.

Recommendations

This study, although beneficial on a small scale, would have had a greater impact on the organization if it had been broader in scope. Further research is recommended. Further investigations should be done to determine if there were new policies, procedures or Standard Operating Procedures (SOP) enacted during the time period. Also, there should be an investigation into any personnel changes that took place during the study that could have changed the performance of the team.

Efforts should be made to continually educate the users of the system on best practices that will allow Moncrief to build a system that will benefit its patient whether here or abroad. Expanding the scope of study by looking at the impact of AHLTA implementation on all specialty clinics and individual providers may yield more significant and useful results. Also, looking at additional metrics in AHLTA including: specific provider, allied health clinics, ancillary services, and provider type, would further add to the utility of this study. Finally, extending the timeframe and evaluating specific periods would add utility to this study by enabling decision makers to determine if there are seasonal issues involved.

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This study examined the effects of the Armed Forces Health Longitudinal Technology Application (AHLTA) implementation on Ambulatory Data Module (ADM) compliance, coding compliance, and provider productivity. The sample size consisted of the 24 months of data. The AHLTA system is an electronic medical record designed to improve patient care delivery in the military health system. A statistical analysis of the implementation of the AHLTA system on coding compliance and provider productivity showed positive statistical significant results (r =.165, and p =.000) and (r =.216, and p =.022) respectively. There was no statistical correlation between AHLTA implementation and ADM compliance.

15. SUBJECT TERMS

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